Before the
Federal Communications Commission
Washington, D.C. 20554

In the matter of	)	
	)	
Modification of Parts 2 and 15 of the	)	
Commission's Rules for unlicensed devices	)	ET Docket No. 03-201
and equipment approval.	)	

COMMENTS OF

Matsushita Electric Corporation of America

Matsushita Electric Corporation of America and its subsidiaries and affiliates ("Panasonic") respectfully submit these comments in response to the Commission's Notice of Proposed Rulemaking ("NPRM") in the above captioned proceeding concerning the rules governing unlicensed devices and the associated equipment approval process.[1]

INTRODUCTION

Panasonic commends the Commission for continuing to adapt its regulations to provide incentives for new technological advancements and for seeking to remove unnecessary regulatory impediments. We support the Commission's proposal to permit additional methods of power measurement for unlicensed digital devices that are

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[1] *Modification of Parts 2 and 15 of the Commission's Rules for unlicensed devices and equipment approval*, ET Docket No. 03-201, Notice of Proposed Rulemaking, 18 FCC Rcd 18910 (2003).

consistent with the existing U-NII power measurement rules[2] so long as these methods are adopted as *alternatives* rather than *replacements* to the existing procedures. The Commission's proposal to allow use of alternative antennas with unlicensed equipment also should be adopted. We also support permitting wider signal bandwidths in the 2.4 GHz band for frequency hopping spread spectrum (FHSS) devices so that new technologies can be introduced, but recommend that there not be a limit to the number of hopping channels. Finally, as discussed below, we believe that the Commission's adoption of etiquettes or standards for unlicensed devices would create new and unnecessary regulatory requirements that would prove to be strong disincentives for the very technological innovation and advancement that the Commission otherwise has as its goals in this proceeding.

BACKGROUND

Matsushita Electric Corporation of America ("MECA") is the principal North American subsidiary of Matsushita Electric Industrial Co. Ltd., a world leader in electronics and wireless telecommunications technology. MECA and its subsidiaries and affiliates (hereinafter "Panasonic") manufacture and distribute a wide range of consumer electronics, information technology, and other electronic products. Panasonic has over 90 business locations in North America, including 11 manufacturing facilities - employing approximately 22,000 people.

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[2] 47 C.F.R. §§ 15.407(a)(4) and 15.407(a)(5).

Panasonic is a leader in the cordless phone and wireless networking markets and manufactures a wide range of products that are governed by the rules under consideration in this proceeding. For example, this year Panasonic will debut new 2.4 GHz and 5.8 GHz GigaRange™ expandable cordless telephone systems and add-on compatible handsets that utilize Frequency Hopping Spread Spectrum (FHSS) digital modulation to ensure privacy. Panasonic also is a member of the Wi-Fi Alliance, and is marketing several products that utilize wireless networks.

Shortly Panasonic will introduce new cameras that will allow users to monitor virtually any location via the Internet —whether home, office, small business or even vacation house—from nearly anywhere in the world. Select cameras in this line will feature wireless capability using 802.11b/g-compatible routers or access points.

Panasonic commends the unlicensed regulatory environment fostered by the Commission for enabling these and other products that enrich and protect the lives of American consumers.

INNOVATION IS FOSTERED BY PROVIDING ADDITIONAL METHODS FOR MEASURING POWER APPROPRIATE FOR DEVICES UTILIZING WIDEBAND DIGITAL MODULATION

Panasonic supports the Commission's proposal to permit use of alternative techniques to measure the power output and power spectral density for digitally modulated devices,[3] *provided* that the new measurement techniques are alternatives to,

[3] *See* proposed Section 15.247(e), NPRM at ¶¶ 21-24 and App. A, p. 26.

and not a replacement for, the methods currently provided at Sections 15.247(b)(3) and 15.247(d) of the Commission's rules.

The Commission is on the right track in considering ways to harmonize measurement techniques for similar unlicensed devices. As the Commission noted in adopting the U-NII rules, however, measurement techniques based upon average power, rather than peak power, are more appropriate for broadband digital signals. Especially given the marketing of IEEE 802.11 unlicensed devices that use both the 2.4 and 5 GHz bands, providing a uniform power measurement technique that can be employed in both bands will be beneficial.

The Commission proposes to add a new subsection (e) to Section 15.247 that would *permit,* but not *require*, the use of the averaging methods utilized in the U-NII rules. We support this change. At the end of paragraph 24 in the text of the Commission's NPRM, however, it asks which limit should be applied. The Commission need not replace one with the other. Each is appropriate in its own domain, and providing for use of *either* procedure will allow manufacturers and designers the maximum degree of flexibility to design their equipment using existing and future technologies.

Creating this flexibility is important to the creation and use of new technologies in the future. We note, for example, that even with regard to the U-NII measurement

techniques, new technologies may require clarification of the measurement procedures.[4] Therefore, it will be beneficial for current and future technological development to permit 2.4 GHz digital devices to be measured using alternative methods.

ALLOWING SUBSTITUTION OF ALTERNATIVE ANTENNAS WILL INCREASE SPECTRUM EFFICIENCY

The Commission proposes to amend Section 15.203 of its Rules to permit multiple antennas of different types to be approved for unlicensed devices.[5] Allowing multiple antennas to be used with unlicensed equipment, including gain antennas, will improve the flexibility and utility of this equipment. Such flexibility also will permit matching an antenna to the desired direction of communications, which will improve the reliability of the communication and also increase spectrum efficiency by decreasing radiation in non-desired directions. For these reasons we support this proposal.

WIDER BANDWIDTHS FOR 2.4 GHz FREQUENCY-HOPPING SPREAD SPECTRUM DEVICES WOULD ALLOW IMPLEMENTATION OF NEW TECHNOLOGIES

Panasonic supports the Commission's proposal to modify the frequency hopping spacing requirement to permit devices to utilize hopping channels separated by either 25 KHz or two-thirds of the signal's 20 dB bandwidth, whichever is greater.[6] As the Commission notes, this change will permit use of new and faster transmission

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4 *See Measurement Procedure Updated for Peak transmit Power in the Unlicensed National Infrastructure (U-NII) Bands,* DA 02-2138 (released Aug. 30, 2002).

5 *See* NPRM at ¶¶ 16-17.

6 *See* proposed amendment to Section 15.247(a)(1) at NPRM, App. A, p. 25 and ¶¶ 25-30.

technologies in the 2.4 GHz band, including that of the Bluetooth Special Interest Group (SIG). We also support the Commission's proposed power limit of 125 mW for such devices.

The Commission proposes to limit the new types of devices to those employing fewer than 75 hopping channels. There is no need for such a limitation, given that the proposed power limit is the minimum 125 mW. Therefore, we suggest deleting this proposed limitation. The pertinent rule then would read: "Frequency hopping systems in the 2.4 GHz band may have hopping channel carrier frequencies separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW."

COMMISSION ADOPTION OF AN ETIQUETTE OR STANDARD GENERALLY CHILLS INNOVATION

Under the heading of "Improving Sharing in the Unlicensed Bands", the Commission solicits comment on adopting a spectrum etiquette or transmission standard, at least theoretically for the purpose of improving spectrum efficiency. We oppose adoption of an etiquette or standard in any of the current unlicensed bands. The experience of the past decade conclusively demonstrates, that far from improving spectrum efficiency, spectrum etiquettes or standards *decrease* efficiency and stifle innovation.

The single exception presented is when unlicensed devices may gain access to new needed spectrum that is occupied by primary users requiring a high degree of

protection. This is the case with Unlicensed National Information Infrastructure (U-NII) devices, which must share two of the four 5 GHz U-NII bands with high-powered radar used for national safety and security purposes. But even in that situation operational parameters were defined to protect the primary users rather than adopting a specific standard or etiquette. There is no standard dictating *how* the required degree of protection must be attained. The degree of protection is defined but the devices may meet the operational requirement in any way feasible.[7] This flexible approach will permit – indeed encourage -- use of new technologies to meet the protection requirements in the future.

Given the relative high occupancy of the 900 MHz, 2.4 and 5 GHz unlicensed bands by millions of devices, both old and new, it is difficult to discern a reason for generally proposing or adopting etiquettes or restrictive standards. On a per-KHz basis these bands contain the highest concentrations of devices of any spectrum and bring tangible benefits to almost every consumer in the country.

As the Commission noted, it did adopt etiquettes for the Unlicensed Personal Communications Services (U-PCS) bands at 1910-1930 GHz.[8] The Commission's

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7 *See Revision of Parts 2 and 15 of the Commission's Rules to Permit Unlicensed National Information Infrastructure (U-NII) devices in the 5 GHz band* , Report and Order, 18 FCC Rcd 24484 (2003).

8 *See, Amendment of the Commission's Rules to Establish New Personal Communications Service,* ET Docket No. 90-314, Report and Order, 8 FCC Rcd 7700 (1993), amended on reconsideration, 9 FCC Rcd 4957 (1994).

experience with that band, however, should raise red flags with regard to its adoption of detailed etiquettes or standards. Technologies quickly change, and occupancy by unlicensed devices in the UPCS bands has withered.[9]

With the race of technological innovation far outstripping the ability of industries and regulatory commissions to adopt new rules, Panasonic urges that no etiquettes or standards be considered for the current unlicensed bands. For new spectrum that is proposed to be shared, in certain specific instances some *performance* requirements may be required. But every effort should be made to resist adoption of specific etiquettes or standards. The lessons of spectrum management over the past decade demonstrate that today's standards and etiquettes too quickly become yesteryear's technology. The result is less technological innovation, fewer new services, and wasted spectrum capacity.

CONCLUSION

For the reasons noted above, we urge the Commission to adopt the U-NII power measuring method as an *alternative* for 2.4 GHz digital devices, and to permit narrower spacing of signals for FHSS systems as proposed, but *without* the 75 hops limitation. There is no need to consider spectrum etiquettes or similar standards for unlicensed

[9] The Commission itself has noted that there has been little development of devices under its adopted unlicensed "asynchronous" etiquette and only limited development under its "isochronous" etiquette. Petitions to change these etiquettes have been pending for over five years and remain under consideration while this prime spectrum remains relatively dormant, a situation starkly illustrating the fallacy that Commission adoption of spectrum etiquettes for unlicensed spectrum will improve spectrum efficiency. *See New Advanced Wireless Services*, ET Docket No. 00-258; RM-9498; RM-10024; Memorandum Opinion and Order and Further Notice of Proposed Rulemaking, 16 FCC Rcd 16043 (2001); Second Report and Order, 17 FCC Rcd 23193 (2002); Third Notice of Proposed Rulemaking, 18 FCC Rcd 2223 (2003).

devices unless sharing environments in new bands require special consideration, and even in those situations specifying protection levels, rather than requiring use of a specific method or technology to meet the required levels, will best promote continued technological innovation and advancement.

Respectfully Submitted,

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